

REMARKS

INTRODUCTION:

In accordance with the foregoing, no claims have been canceled, no claims have been amended, and claims 16-21 have been added. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1, 3, 4, 6, 8, 10, and 16-21 are pending and under consideration. Reconsideration is respectfully requested.

REJECTION UNDER 35 U.S.C. §103:

At pages 3-8 of the Office Action, claims 1, 4, and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,278,075 to Kamiguchi et al. ("the '075 patent") in view of European Patent Application No. EP 0 934 791 A2 by Kamiguchi et al. ("the '791 application"). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

As an initial matter, the Applicants respectfully note that both the '075 patent and the '791 application were derived from the same combination of two Japanese patent applications. Accordingly, the contents of the '075 patent are substantially the same as those of the '791 application.

Regarding claims 1, 4 and 8, the Examiner cites the '075 patent for teaching the discharge pulse number counting means as recited. The Applicants respectfully disagree. Each of these claims recites:

discharge pulse number counting means for counting a discharge pulse number applied every predetermined time.

The '075 patent does not teach or suggest counting a discharge pulse number applied every predetermined time. Referring to FIG. 1 of the present application, a discharge pulse number counting device 7 counts a discharge pulse number P_x every predetermined time. In contrast, the '075 patent mentions counting a discharge pulse number every predetermined distance.

FIGS 1 and 2 of the '075 patent are illustrative of this distinction. A main pulse number storing device 14 stores a main pulse number (effective discharge pulse number) $P(n)$, $P(n+1)$... counted every predetermined distance Δx when the plate thickness is $H(n)$, $H(n+1)$ Therefore, in the '075 patent, the ratio (P/P_s) of the main pulse number P to the reference pulse number P_s only gives a plate thickness change rate β (that is, $\beta = P/P_s$). See the '075 Patent, column 8, line 28 to column 9, line 10, and FIG. 2.

The above ratio P/P_s of the '075 patent is completely different from the ratio P_x/P_s (the ratio of discharge pulse number P_x to reference discharge pulses number P_s) of the present invention, because P_x and P_s in the present invention are numbers to be counted every predetermined time, not every predetermined distance.

Further, with respect to claim 1, the Examiner acknowledges that the '075 patent fails to teach the outputting means as recited in claim 1. Instead, the Examiner cites the '791 application for teaching this feature. As indicated above, the '791 application is a European counterpart to the '075 patent. As such, the sections of the '791 application cited by the Examiner for teaching this feature are also contained by the '075 patent. Regardless, the Applicants respectfully submit that neither reference suggests the outputting means as recited. Claim 1 recites

means for outputting, to said moving means, distance obtained by multiplying relative moving distance between said wire electrode and said workpiece to be determined by a preset feed speed and said predetermined time by said ratio as a moving command every said predetermined time.

Equation 3, $H1=H_s(P1/P_s)$, cited by the Examiner for teaching this feature, means $H1/H_s = P1/P_s$. This means a plate thickness change rate is equal to a discharge pulse number change rate obtained by counting every predetermined distance. More specifically, the '791 application performs control in a manner such that the plate thickness change rate obtained from $P1/P_s$ is used for keeping machining current density constant even when plate thickness changes. Thus, equation 3 does not relate to "outputting, to said moving means, distance obtained by multiplying relative moving distance... by said ratio as a moving command."

Additionally, with respect to claim 4, the Examiner acknowledges that the '075 patent fails to teach a quiescent time controller as recited and instead relies upon the '791 application. The Applicants respectfully disagree. Claim 4 recites:

a quiescent time controller for controlling discharge quiescent time so as to restrain surplus supply of energy in accordance with the comparison result by said comparison means.

The applicants respectfully note that the Examiner does not cite a specific section of the '791 application for teaching this feature. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. 37 CFR 1.104(c)(2). Regardless, the Applicants have found no mention of a quiescent time controller in the '791 application. Moreover, the '075 patent discloses, as equation 15, $T_{off}(n+1) = T_{off}(n)/\beta$. As this equation means, using equation

11, $T_{off}(n+1)/T_{off}(n) = 1/(H(n+1)/H(n))$, which means machining current density is kept constant if a pause time period is changed (from $T_{off}(n)$ to $T_{off}(n+1)$) according to the change of plate thickness (from $H(n)$ to $H(n+1)$). Column 19, lines 1-10. Therefore, this equation does not suggest "controlling discharge quiescent time... in accordance with the comparison result by said comparison means."

The Applicants respectfully submit that at least because neither the '075 patent nor the '791 application, individually or combined, teach or suggest all of the elements of claims 1, 4 and 8, the combination of the '075 patent and the '791 application fails to establish a prima facie case of obviousness. Accordingly, claims 1, 4, and 8 are deemed allowable over the art of record. Therefore, withdrawal of the §103(a) rejection is respectfully requested.

ALLOWABLE SUBJECT MATTER:

The Applicants acknowledge with appreciation that claims 3 and 6 have been allowed. The Applicants also acknowledge with appreciation that claim 10 has been found to contain allowable subject matter. However, because claim 8 is believed to be allowable, it is requested that claim 10 be found allowable as is.

NEW CLAIMS 16-21:

New claim 16 is directed to a controller for a wire electric discharge machine comprising
a discharge pulse number counter to count a discharge pulse
number applied every predetermined time.

Therefore, it is submitted that claim 16 patentably distinguishes over the prior art.

New claim 17 is directed to a controller for a wire electric discharge machine comprising
a comparing part to compare a numerical value obtained by a
discharge pulse number counter every predetermined time with a
numerical value stored in a reference discharge pulse number
memory.

Therefore, it is submitted that claim 17 patentably distinguishes over the prior art.

New claim 18 is directed to a controller for a wire electric discharge machine comprising
a discharge pulse number counter to count a discharge pulse
number applied every predetermined time.

Therefore, it is submitted that claim 18 patentably distinguishes over the prior art.

New claim 19 is directed to a controller for a wire electric discharge machine comprising
a determining part to determine a ratio of a numerical value
obtained by a discharge pulse number counter every

predetermined time to a reference numerical value.

Therefore, it is submitted that claim 19 patentably distinguishes over the prior art.

New claim 20, from which new claim 21 depends, is directed to a controller for a wire electric discharge machine comprising

a discharge pulse number counter to count a discharge pulse number applied every predetermined time.

Therefore, it is submitted that claims 20 and 21 patentably distinguish over the prior art.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

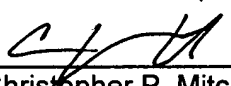
If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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